

# MISSOURI. Conservationist

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# Research Enhances Management of Missouri's Fish, Forest, and Wildlife

To learn and grow in knowledge should be a goal for each of us throughout our lives. Your Department of Conservation is constantly seeking new knowledge in fish, forest, and wildlife management.

The Department's research staff is exploring new innovations in technical research that will build upon our current scientific foundation to manage Missouri's natural resources into the future.

Technical research and learning new scientific information is a cornerstone of any successful conservation program. Our world is changing! Invasive plant and animal species, changing land-use patterns, and a growing population are just a few variables that impact our native natural resources. When you combine fish, forest, and wildlife management; protection; and public input with research, you have the highly successful Missouri Model of conservation.

Current research includes evaluating survival, reproduction, habitat use, and movement patterns of whitetail deer and wild turkey. Biologists are capturing and placing tracking devices on deer in northwest Missouri and in the Ozarks. Wild turkeys are being studied and monitored in northeast Missouri. The research information will build a broader database and enable managers to refine science-based decisions on deer and turkey hunting seasons and harvest limits.

A five-year quail research project is underway in southwest Missouri to test the difference between managing grassland landscapes through managed burning and grazing instead of the more traditional approach of annual food plots in producing quail. Department staff are trapping male and female quail on several conservation areas and fitting them with radio collars. Quail are then tracked throughout the year and the data gathered will help determine many aspects of quail life history including survival, breeding status, habitat use, and distance moved.

The article on collared lizards in this issue is an excellent example of how a species has benefitted from research and associated management activities. Science builds upon itself — the more we learn, the more we want to know!

Biologists have learned how to raise hellbenders in captivity, which will help restoration efforts in our Ozark streams, but we need to better understand the factors that are causing



hellbenders to decline. As a conservation department, we need to know more about bats and better understand monarch butterflies and specific factors causing their decline. Continuing to build scientific knowledge on prairie ecosystems, forest ecosystems, paddlefish, and sturgeon are just a few ongoing research projects.

Most of Missouri's streams have been altered and degraded. Many of our state's wetlands have been converted to other land uses. How do scientists ensure that Missouri's wetlands maximize benefits for all wetland species and maintain the correct stream flow to maximize benefits for all stream species? These tough and complex research issues represent important projects Department scientists are currently working on for a healthier future for Missouri citizens and the state's natural resources.

A quality conservation program must have an engaged citizenry. Missourians live in an ever-changing society with new and multiple demands on our time. Together we must stay engaged, share ideas, and look for opportunities to improve conservation in Missouri. Last year research scientists conducted surveys that reached almost 200,000 citizens asking them what they thought about a variety of outdoor issues. Your opinion and thoughts are vitally important to Missouri conservation and the Department of Conservation wants to hear from you!

Department research scientists have a long history of exploring natural resource questions, innovating research and management solutions, and leading the nation in scientific discoveries. The Department's research staff utilize adaptive learning, creative thinking, embrace technology, and are national leaders in fish, forest, and wildlife research. Building on this world-class research with field management, protection, and citizen engagement will improve Missouri's natural resources, Missouri citizen's quality of life, and continue to make Missouri a great place to live.

Tim Ripperger, deputy director



## FEATURES

### 10 **The Rebound of the Eastern Collared Lizard**

*story and photographs by Jeff Briggler*

Once a declining species in Missouri, the eastern collared lizard is making a comeback in the Ozarks due to habitat improvement

### 16 **Summertime Bow Fishing**

*by Tim Kjellesvik, photographs by David Stonner*

An exciting blend of hunting and fishing offers hot archery action on the water

### 22 **Searching for Berry Treasure**

*by Gladys J. Richter*

Missouri is ripe with berries during the spring and summer months

Cover: An eastern collared lizard basks in the sun at Peck Ranch Conservation Area near Winona, Missouri. Photograph by Noppadol Paothong. Read more about this lizard's comeback starting on Page 10.

📷 500mm lens • f/13 • 1/250 sec • ISO 200

## DEPARTMENTS

2 **Letters**

4 **Hunting & Fishing Calendar**

4 **Agent Notes**

5 **Ask MDC**

6 **News & Events**

30 **Plants & Animals**

32 **Places to Go**

33 **Discover Nature**

## WHAT IS IT?

Our photographers have been busy exploring the intricacies of outdoor Missouri. See if you can guess this month's natural wonder. The answer is revealed on Page 8.



## MORE BIRD'S-EYE VIEWS

Thanks for a wonderful magazine! My husband and I love to watch the FalconCam [FalconCam Gives Bird's-Eye View of Peregrine Falcon Chicks; Page 6, April] each year. We also discovered an Eagle Cam located at [dukefarms.org](http://dukefarms.org) in New Jersey where my husband is from. Two baby eagles recently hatched. Tell your readers.

Donna Jablonski, via email

## NO DUMPING

What a disappointment I felt when I read this article [No Dumping, May] by Francis Skalicky.

The piranhas and the alligator are tropical and must have a water temperature above 75 degrees, so they would not survive a Missouri winter nor would nearly all aquarium fish, which are generally tropical in nature and must be kept

warm. I don't believe that dumping of aquarium fish or other pets is ok, but let's get our facts straight and use realistic examples.

Also let's find a solution to the Asian carp problem as it will ruin sport fishing, commercial fishing, and boating. Follow Kentucky's example and try commercial netting of those pests.

Gary Meyers, via email

*Author's Note: The prevailing belief that aquarium and other warm-water aquatic species can't survive a Missouri winter isn't always true. An American alligator's chance of surviving a Missouri winter is admittedly lower than in its natural range (the southeastern U.S.), but this reptile has been known to survive water temperatures much cooler than it's ac-*

*customed to. To survive cold weather, an alligator sometimes excavates a burrow in which it stays during colder periods. In regard to piranhas, studies have shown piranhas can tolerate water temperatures down to 50 degrees F. If fish find a refugia spot (a place where a spring-fed inlet keeps temperatures constant), aquarium fish might survive.*

However, even if species do not survive winter, they can do considerable damage to a habitat up until the time of their demise. Aquarium nonnative species can also introduce diseases and parasites into an ecosystem. The tropical host fish and amphibians (frogs, salamanders, etc.) may not survive, but the pathogens or parasites could survive to impact Missouri's native species.

In regard to Asian carp, they are a classic example of how much of a problem invasive species can be. The Department promotes the harvest of all Asian carp. There is no closed season or daily size limits. Commercial fishing can be used in an attempt to reduce their number. For more information, visit the Fishing Regulations on our site at [mdc.mo.gov/node/3104](http://mdc.mo.gov/node/3104). —Francis Skalicky



## Reader Photo

## LEAVING THE NEST

Randall Jackson of St. Joseph, Missouri, took this photo of a bluebird chick leaving the nest for the first time. "For the past seven years, I have built, placed, and monitored about 20 bluebird houses in rural Buchanan County," said Jackson. "Not long after I set up to shoot some photos near this box, the adult female appeared and began chirping incessantly from the gate post nearby. Soon, a little head poked out of the hole of the nest box and looked around." Jackson said with the mother's coaxing, the fledgling finally had enough courage to leave the nest. "The mother bluebird repeated this scenario for each one of her babies," said Jackson. "The entire exodus took less than five minutes."



## CORRECTION

In *How to Bug a Bluegill* [May], we incorrectly referred to bluegill as a "game fish." Although bluegill are an important sport fish, they are not defined as a game fish in the *Wildlife Code of Missouri*. This is because bluegill and other nongame fish can be used as live bait to catch other species. In Missouri, no game fish may be used for bait. Check area regulations for daily limits for bluegill and special length limits.





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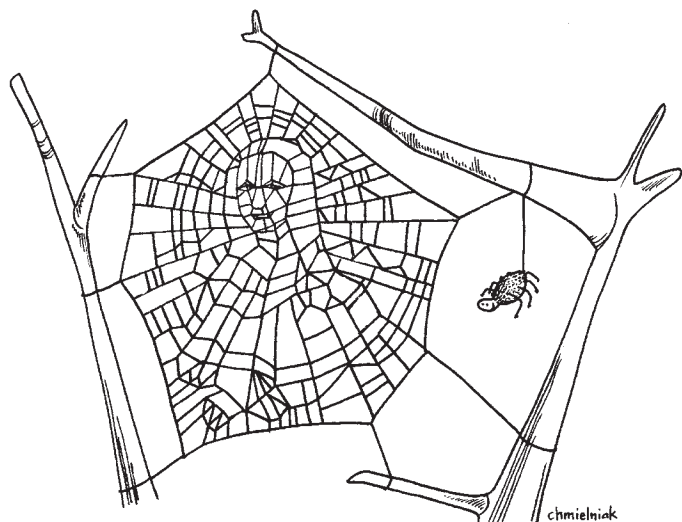
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## Agent Notes

### *Summertime Froggin'*

DURING FROGGING SEASON, which runs from sunset June 30 through Oct. 31, I routinely receive this question: What permit is needed to pursue bullfrogs and green frogs? The answer depends on the method used to capture your prey.

With a fishing permit, frogs may be taken by hand, hand net, atlatl, gig, bow, trotline, throw line, limpline, bank line, jug line, snagging, snaring, grabbing, or pole and line. With a small game hunting permit, frogs may be taken by hand or hand net, with a .22-caliber or smaller rimfire rifle or pistol, pellet gun, bow, crossbow, or atlatl. Any person 15 or younger may take frogs without a permit — subject to hunter education requirements if using hunting methods. The daily limit for bullfrogs and green frogs is eight, with a possession limit of 16 total at any one time. An artificial light may be used.

You can find frogs around ponds, lakes, rivers, and streams — just listen for the sounds of croaking. Be sure to obtain permission if you will be frogging on private property.

This summer when you are looking for a fun family activity, give frogging a try. It's a great way to introduce kids to the outdoors. They will enjoy trying to chase and catch jumping frogs.

**Jason Eikermann** is the conservation agent for Gasconade County. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.



## HUNTING & FISHING CALENDAR

FISHING	OPEN	CLOSE
Black Bass from Ozark Streams	05/23/15	02/29/16
Bullfrogs and Green Frogs	Sunset	Midnight
	06/30/15	10/31/15
Nongame Fish Giggling		
Impounded Waters	02/01/15	01/31/16
Streams	09/15/15	01/31/16
Paddlefish on the Mississippi River	09/15/15	12/15/15
Trout Parks		
Catch-and-Keep	03/01/15	10/31/15
HUNTING	OPEN	CLOSE
Coyote (restrictions apply during April, spring turkey season, and firearms deer season)	All year	None
Deer		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Urban Zones Portion	10/09/15	10/12/15
Early Youth Portion	10/31/15	11/01/15
November Portion	11/14/15	11/24/15
Antlerless Portion (open areas only)	11/25/15	12/06/15
Alternative Methods Portion	12/19/15	12/29/15
Late Youth Portion	01/02/16	01/03/16
Groundhog (woodchuck)	05/11/15	12/15/15
Pheasant		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Quail		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Rabbit	10/01/15	02/15/16
Squirrel	05/23/15	02/15/16
Turkey		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Fall	10/01/15	10/31/15
Waterfowl	see the <i>Waterfowl Hunting Digest</i> or <a href="http://mdc.mo.gov/node/3830">mdc.mo.gov/node/3830</a>	

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, *The Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest*, and the *Migratory Bird Hunting Digest*. For more information, visit [mdc.mo.gov/node/130](http://mdc.mo.gov/node/130) or permit vendors.



# Ask MDC

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Cedar-apple rust

**I found this “thing” on a cedar tree next to my yard. I have never before seen anything like it! What is it and how did it get there? Is it dangerous? Can it or will it transfer to other plants or trees nearby?**

It is a gall (a swollen growth similar to a wart) of a fungal disease called cedar-apple rust. The fungus is so named because it requires two hosts to complete its life cycle: eastern red cedar trees and apple trees. The fungus overwinters inside the galls on cedar trees, then spring rains cause worm-like tentacles (called telia) to extrude from the galls. As the telia absorb moisture, they become jelly-like and swollen and eventually produce spores that are discharged into the air. The spores that land on apple trees or crab apple trees grow to produce an orange blemish or “rust” on apple leaves and fruit.

The life cycle continues one or two months later when the rust produces another fungal structure (called aecia) on the underside of the leaf or on the fruit. Different spores are produced and released into the air in late summer. The spores that land on young leaves of cedar trees then germinate and form more galls. The galls generally take two years to mature.

The disease does not generally kill red cedar trees, but can significantly blemish apple leaves and fruit, eventually weakening highly susceptible trees. You can manage cedar-apple rust on susceptible apple trees by applying fungicides in the spring or by planting resistant varieties of apple trees.



Greater bee fly

**I came across this bug and took this picture while hiking at Castor River Conservation Area. What is it? A bee? A moth? A fly?**

It's a type of fly called a greater bee fly. It's named this because it mimics a bumblebee with its yellowish and brown furry body and buzzing sound it makes when flying. Bee flies have only two wings instead of four (like bees), large eyes, skinny long legs, and very short antennae. They are fast and skillful fliers and use their long, stiff tongues (proboscis) to probe into flowers for nectar. They aid pollination because pollen sticks to their furry coats, and they transport it to other flowers.

**I saw this photo on Facebook, the person claims it is a black**

**mountain lion and was taken near Ava, Missouri.**

This is a hoax. This photo has been making the rounds on the Internet for some time, and various people claimed to have taken it in their state. It is a photo of a black leopard and was probably taken in Africa or Asia, where leopards are found. The black color is called melanism and is caused by a recessive gene that affects pigment. While this coloration occurs in leopards, there is no recorded evidence of a black cougar or mountain lion in North America. Missouri does have confirmed cases of mountain lions, but no evidence of a breeding population. For more info, visit [mdc.mo.gov/node/3505](http://mdc.mo.gov/node/3505).





Lake sturgeon

## Department Confirms Lake Sturgeon Now Reproducing in Mississippi River

Three decades of lake sturgeon restoration efforts by the Missouri Department of Conservation came to fruition recently when Department Fisheries staff confirmed that the nearly extinct fish are once again naturally reproducing in the Mississippi River near St. Louis.

This ancient species, which has been around for more than 150 million years and has outlived the dinosaurs, was nearly brought to extinction

within the past 50 years. They were once common in our big rivers, but overharvest and river habitat degradation caused their decline by the 1970s.

These river giants can reach lengths of 8 feet, weigh as much as 300 pounds, and live for more than 100 years. The fish reach reproductive maturity in 25–30 years, but have a slow rate of reproduction, making them even more vulnerable to population declines.

Decades ago, Department Fisheries biologists took action to prevent lake sturgeon from disappearing in Missouri rivers. In 1974, the Department listed the species as a state endangered fish and banned their harvest. In 1984, staff began to raise them in Department hatcheries and release fingerlings into Missouri rivers.

For more than three decades, Fisheries staff have looked for signs that the fish were on their way back through natural breeding in these rivers. They got a sign in mid-April in the form of a video shot by Sam Hardy of St. Peters. While snagging for paddlefish near West Alton on the Mississippi River, Hardy saw what he thought were lake sturgeon spawning. He and Kristin Biagioli, also of St. Peters, captured smartphone video of the behavior.

“I was excited because I’m an avid angler and outdoorsman and just to see something like that,” recalled Hardy, who had never seen a lake sturgeon in the wild. “I was just like a little kid. It blew my mind.”

Fisheries staff confirmed from the video that the fish were lake sturgeon and the behavior was consistent with spawning activity. They also examined the site where Hardy shot his video and discovered fertilized eggs. Fisheries staff collected 200 eggs to hatch in a lab and confirmed the species as lake sturgeon. They then returned to the site near West Alton and observed recently hatched sturgeon in the river. This final piece of evidence confirmed lake sturgeon were once again reproducing naturally in the Mississippi River.

“Lake sturgeon typically spawn from April to May,” explained Fisheries Management Biologist Travis Moore, who leads the Department’s Lake Sturgeon Recovery Team. “As spawning begins, several males join a single female near a rocky shoreline and begin thrashing in the water. This activity mixes the eggs from the female and milt from the males, and the fertilized eggs then stick to rocks until they hatch within about a week.”

Fisheries biologists began noticing other signs in mid-April suggestive of spring spawning. A small number of fish previously implanted with ultrasonic transmitters were tracked moving to locations favorable for spawning. One lake sturgeon was also captured on video in Dardenne Creek, a tributary to the Mississippi River in



St. Charles County. Biologists interpreted this movement as a search for spawning opportunity. Another angler-submitted video during this time also showed lake sturgeon spawning.

"We've been stocking lake sturgeon for 30 years, and our highest priority was to establish a self-sustaining population," said Department River Systems Ecologist Quinton Phelps. "This confirmation is at least the beginning of a self-sustaining population."

Phelps added that he and other Fisheries experts view sturgeon reproduction in the wild as a landmark event, likening it to the historic success of bringing back deer and turkey to Missouri. "In the fish world, this is big, big news," he said.

To learn more about lake sturgeon, go online to [mdc.mo.gov/node/1003](http://mdc.mo.gov/node/1003) or [youtube.com/watch?v=mDAQ2mQ467s](https://www.youtube.com/watch?v=mDAQ2mQ467s).

## Field Day Focuses on Enhancing Habitats for Bobwhite Quail

Bobwhite quail numbers are declining in the Midwest, but landowners can play a critical part in improving habitat to help increase populations. The Missouri Department of Conservation, University of Missouri's College of Agriculture, Food and Natural Resources, MU Extension, Missouri Soybean Association, and the USDA Natural Resources Conservation Service are sponsoring a free field day event on June 27 from 8 a.m.–noon at the Bradford Research Center, east of Columbia. The event will showcase best management practices and techniques that landowners and farmers can use to improve quail habitat and increase populations on their property.

"The goal of the field day is to demonstrate practices that integrate wildlife diversity on a property," said Department Private Land Services Division Chief Bill White. "Quail habitat can easily be integrated with ongoing agricultural or forestry objectives whether it's a crop or livestock producer, forest land, or property used for recreation activities. Some of the best experts in quail and quail habitat will be there to present."

Bobwhite quail are small game birds weighing only 5 to 6 ounces that can fly short distances. Bobwhite populations have suffered since the 1950s from extreme weather events and habitat loss. Bobwhites are an important part of the food chain, eating insects harmful to agriculture.

Its predators include hawks, raccoons, foxes, and coyotes. A healthy bobwhite population in an area is an indicator of a healthy ecosystem.

The field day will include four tours of field operations reflecting best management techniques. Tours will include information on prescribed burning, managing field edges for wildlife, crop field management for pollinators and wildlife, and conservation habitat management techniques. A classroom session on Quail 101 will include experts discussing basic habitat to promote quail, followed by a question-and-answer period for participants.

The event will be followed by a demonstration on how to prepare Asian carp, an invasive fish species that is displacing native fish in the Mississippi and Missouri river basins. Lunch will be available at no cost for those who complete a program evaluation. The event is free and requires no registration. For more information on bobwhite quail management, go online to [mdc.mo.gov/node/3678](http://mdc.mo.gov/node/3678).

## Milkweed for Monarchs: Get Planting!

The distinctive orange and black wings of the monarch butterfly have been a summer staple in Missouri for many generations. The annual migration of North America's monarch butterfly is an amazing journey across the United States, including Missouri, and then down south to overwinter in Mexico. In fact, some monarchs fly as far as 3,000 miles to reach their winter home, with thousands clustering together to stay warm along the way.

If it's been awhile since you've spotted a monarch in large groups or just one, there is a good reason. The migratory population of the monarch butterfly has recently declined to dangerously low levels. Since the monarch travels long distances, several factors are contributing to the decline. These include habitat loss in their overwintering territory in Mexico, as well as the rise of herbicide-resistant crops in the Midwest that



## CONSERVATION COMMISSION ACTIONS

The April Commission meeting featured presentations and discussions regarding FY16 expenditure plan proposals, wetland planning initiative, waterfowl regulations schedule update, grazing for conservation, activities associated with chronic wasting disease efforts, recent deer open house meetings, deer management, and connecting urban residents to forest, fish, and wildlife resources. A summary of actions taken during the April 15–17 meeting for the benefit and protection of forests, fish, and wildlife, and the citizens who enjoy them includes:

- » **Approved** amendments to the *Wildlife Code of Missouri* that clarify special restrictions for the use of single projectile firearms on Lake Girardeau Conservation Area (CA).
- » **Approved** the sale of 1,146,073 board feet of timber located on 393 acres of Compartment 1 of Indian Trail CA in Dent County.
- » **Approved** the purchase of approximately 89 acres in Howell County as an addition to White Ranch CA.
- » **Approved** the conveyance of 0.88 acre of Fiddlers Ford Access in Dade County to Dade County for a bridge replacement project and to grant Dade County a temporary construction easement on an additional 0.6 acre until the project is complete.
- » **Approved** the conveyance of 1.77 acres of Platte Falls CA in Platte County to the Platte City Special Road District for improvements to Interurban Road and to grant the Platte City Special Road District a drainage easement and temporary construction easement on an additional 0.49 acre and 0.4 acre, respectively, of Platte Falls CA.

The next Conservation Commission meeting is July 9 and 10. For more information, visit [mdc.mo.gov/node/3430](http://mdc.mo.gov/node/3430) or call your regional Conservation office (phone numbers on Page 3).



## WHAT IS IT?

### Giant Ichneumon | *Megarhyssa atrata*

The giant ichneumon (ick-NEW-mon) is a rare find in Missouri. Including its long, thin "tail," the ichneumon is more than 6 inches long. Although it looks dangerous, the ichneumon is harmful only to the larvae of other wasps, which ichneumon larvae eat. The giant ichneumon can be found in large tracts of old, deciduous forests throughout the eastern United States. Missouri, with few old forests, is at the western limit of its range. Ichneumon larvae feed upon larvae of the pigeon horntail, another kind of wasp that lays its eggs in dead wood. Giant ichneumons appear May through July. The female locates pigeon horntail larvae in dead wood, then weaves her long egg tube into the nest, depositing an egg. When the egg hatches, the larva feeds on the pigeon horntail larvae. —photograph by Noppadol Paothong

(continued from Page 7)

has improved the ability of farmers to eradicate weeds, including milkweeds that are a critical food source for monarchs.

Monarch larvae feed on a variety of milkweeds, which contain cardiac glycosides. These chemicals are stored in the monarch's body and render it unpalatable and toxic to many predators. The bright color patterns of both larvae and adults cleverly advertise their toxicity to would-be predators. To conserve the monarch, we must allow milkweeds to grow.

The Department actively manages approximately 28,000 acres of grassland and 21,000 acres of glade, savanna, and woodland natural communities with a rich diversity of native plants, including milkweeds and nectar plants, such as New England aster, that are important to monarchs. While every acre helps, there are millions of acres of Missouri land where milkweed planting could have a big impact on the monarch population. Even relatively small milkweed plantings, such as in gardens or landscapes, can provide sufficient habitat for monarch caterpillars. In 2014, the Department partnered with the Missouri Prairie Foundation to distribute more than 4,000 milkweed and other nectar plants free of charge to citizens across the state. The response was overwhelming, and the program will be repeated again in late summer.

You can help the monarchs by planting more milkweed and other nectar plants in your outdoor space, whether big or small. Go to GrowNative! at [grownative.org](http://grownative.org) to learn more about milkweed varieties, including butterfly milkweed, common milkweed, marsh/swamp milkweed, and other native plants. For more on the monarch butterfly, visit our field guide at [mdc.mo.gov/node/3419](http://mdc.mo.gov/node/3419).

### Stay in Touch With Conservation

Learn more about a variety of conservation topics through our email news or texts delivered right to your inbox or phone. You can tailor the deliveries to receive only the topics that interest you, from regional news in your own backyard, statewide news, weekly fishing reports, nature center newsletters, and more. Subscribe at [tinyurl.com/pp6w48a](http://tinyurl.com/pp6w48a). You can also keep up with conservation through social



## DID YOU KNOW?

*We help you discover nature through fishing.*

### Bow fishing is Hunting for Fish With a Bow and Arrow

- **Bow fishing is a legal method** of pursuing nongame fish with a bow and arrow. Nongame fish include bluegill, green sunfish, carp, carp-suckers, suckers, buffalo, drum, gar, and all other species not defined as game fish or listed as endangered in the *Wildlife Code of Missouri*.
- **Bow fishing offers an exciting way** to pursue the kinds of fish most people typically don't care to fish for with a pole and line.
- **Although you're actually hunting** for fish, you'll need a fishing license to bow fish in Missouri. Valid permits include any of the following: Daily Fishing Permit, Fishing Permit, Hunting and Fishing Permit, Lifetime Fishing Permit, and Lifetime Conservation Partner Permit.
- **You can take all the invasive species** you want with a bow and arrow. These include silver, bighead, grass, and common carp, as well as goldfish. Controlling invasive species with methods like bow fishing helps protect native fish species in Missouri waterways.
- **For more information** on bow-fishing seasons, limits, and areas, visit [mdc.mo.gov/node/17412](http://mdc.mo.gov/node/17412).
- **To learn more about bow fishing** (including how to bow fish), what the Department is doing to manage nongame fish species, and the best places to go bow fishing, visit our Bow Fishing Prospects Web page at [mdc.mo.gov/node/28864](http://mdc.mo.gov/node/28864).

media by following us on Facebook, Instagram, Twitter, YouTube, and Vine. If you would like to share your nature photos with us, hashtag your photos with #MDCdiscovernature, #MDCarea, or #MDCevent.

### Ed Glaser Inducted Into Missouri Conservation Hall of Fame

The Missouri Department of Conservation recently honored the late Edwin "Ed" Glaser as the 41st member of the Missouri Conservation Hall of Fame with an induction ceremony at Conservation Headquarters in Jefferson City on April 17. Glaser died in 2002. Glaser's wife, June, accepted the honor on his behalf.

The Missouri Conservation Hall of Fame honors deceased citizen conservationists and former employees of the Department and other conservation-related government agencies who have made substantial and lasting contributions to the fish, forests, or wildlife conservation efforts of the state.

Glaser's 42-year career with the Department began in 1950 as a forestry technician followed by a promotion to supervise fire-control operations in 1956 and later state forests and nurseries. His career continued to advance as he was assigned to begin developing the Department's first state-wide outdoor recreation plan in 1964. His accomplishments and abilities led to his appointment to

the Department's new Planning Division where he wrote many policy position papers, worked closely with the U.S. Army Corps of Engineers on river management issues, and served as the Department's Environmental Services Officer.

In 1984, Glaser was promoted to assistant director followed by an appointment to deputy director in 1988. Following his retirement in 1992, Department leadership frequently called upon him for advice and his historical perspective on key topics and issues. He also represented the Department as liaison to Missouri's Congressional Delegation and General Assembly.

In addition to his work with the Department,

Glaser has been recognized by the Missouri House of Representatives for his active role in a wide variety of community groups. Glaser was a member of several conservation-related organizations and held leadership roles with the Missouri Reclamation Commission and the Karkhagne Club. He served on the Lewis and Clark Trail Commission, the Upper Mississippi River Conservation Committee, the Gasconade Wild and Scenic Rivers Study Team, the Governor's Wild Rivers Advisory Committee, and the Missouri Parks and Recreation Committee.

"The foundation of conservation in Missouri is the coupling of citizen leadership with the guidance of conservation professionals," said Department Director Bob Ziehmer at the induction ceremony. "Ed Glaser was a dedicated conservationist whose lifelong commitment was driven by an intense passion for the resource and a desire to share that with the citizens of our state and country."

**Conservation Commissioner Marilyn Bradford (left) presents June Glaser with a copy of the photo of her husband, Ed Glaser, that will be displayed in the Missouri Conservation Hall of Fame.**





# ***The Rebound of the Eastern Collared Lizard***

Once a declining species in Missouri, the eastern collared lizard is making a comeback in the Ozarks due to habitat improvement

STORY AND PHOTOGRAPHS  
BY JEFF BRIGGLER









The eastern collared lizard (*Crotaphytus collaris*) is a large, conspicuous reptile that is considered one of the more charismatic and colorful species in Missouri. The two black collars circling its neck give the lizard its common name, though it's also known by other names, including "mountain boomer." This name originated with early settlers who mistakenly believed the mountain-dwelling lizard was making sounds. In reality, the collared lizard is voiceless.



## Making a Home in Missouri

Collared lizards primarily live in arid portions of southwestern United States and northern Mexico, but their range extends east into the Ozark Highlands of Arkansas and Missouri. Although the arid conditions of the southwest don't reach this far, the Ozark Highlands have a delicate, desert-like ecosystem called glades that support collared lizards and other interesting wildlife. Glades are dry, rocky openings on hills in forests, woodlands, and prairies. This lizard lives among the rocks and has adapted to the hot, dry, and sunny conditions of glades even with temperatures exceeding 90 degrees. The

eastern collared lizard has also adapted to human-altered landscapes, using rock quarries, riprap along lake shorelines and levees, and large boulders that often adorn golf courses.

## Surviving the Glade

Collared lizards have many interesting characteristics that help it survive on open, rocky glades. This lizard basically lives its life on a rock, preferring to view the world from a medium- to large-size rock during its active season from April through October. From atop a large rock, the lizard can bask in sunlight, observe its territory, and locate prey such as spiders, insects, small snakes, and other lizards.

An eastern collared lizard sunning on a rock is wary and often difficult to approach. It will dart for cover under large rocks or in cracks and crevices along bedrock ledges, but it will slowly emerge and return to its preferred sunning and viewing location.

Although voiceless, collared lizards use body language as a form of communication. Males are highly territorial and use stereotypical posturing

## Be a Good Steward

The loss or degradation of habitat has been one of the leading causes of decline for many wildlife species, including the eastern collared lizard. This lizard, once common and widespread, was declining in Missouri due to fire suppression, resulting in woody encroachment (primarily by eastern red cedars) that overtook the open glade habitat that collared lizards require.

With habitat restoration and successful reintroductions, collared lizards are rebounding in Missouri. However, other threats to the species and their habitat have emerged. Glades are vulnerable habitats with many interesting plants and animals. Searching for amphibians and reptiles in their natural habitat can be an educational and rewarding pastime, but such activities can also be a real threat to these species. Plants are easily trampled or dug up, animals are collected and removed, or rocks that provide shelter for animals from heat and predation are removed, disturbed, or destroyed.

Rocks on glades are homes for a variety of animals from spiders to scorpions to many species of amphibians and reptiles, including the collared lizard. Repeatedly flipping and turning rocks on glades will ultimately destroy the microhabitat beneath the rock that is vital to the animal's survival. In some cases, people believe it is okay to remove an animal like a collared lizard to keep as a pet. Not only are these actions illegal in some areas, but these animals do not make good pets and will quickly die in captivity. When searching for these animals, please be a good ambassador by knowing the laws, protecting the animals, and protecting the habitat they depend upon.



**Rocks on glades are homes for a variety of animals, including the eastern collared lizard. Repeatedly flipping and turning rocks on glades will ultimately destroy the microhabitat beneath the rock that is vital to the animal's survival.**

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such as head bobbing, flattening of the body, and pushups to defend territories from other males or to court a female.

Considered one of the top predators on the glade, collared lizards eat anything that can fit into their mouths, but there are many species, such as snakes, small mammals, birds of prey, and roadrunners, that feed upon them. If forced to retreat from such predators in open habitats, they typically escape by running upright on their hind legs to a nearby rock. If captured, they are feisty and have powerful jaws that can deliver a substantial bite.

## A Year in the Life

The majority of an adult collared lizard's life is lived below ground. They are only active on the surface for about five months during the warmer spring and summer months. Courtship and mating occurs during this time, typically from mid-May into early June. The female will lay two to 21 white, leathery eggs, which are slightly over ½ inch, beneath a rock that she has excavated for their protection. Once the eggs are laid, the female plugs the nest's entrance with dirt to further protect the eggs from predators and departs, allowing the eggs to develop and hatch on their own. The eggs hatch in approximately two to three months, depending upon temperature and weather conditions. The tiny hatchlings are only about an inch in size and dig their way out of the nests in late August or early September. They immediately begin feeding vigorously upon small insects to prepare for the upcoming winter. Young collared lizards grow remarkably fast and can double or even triple in size before cold weather arrives in October. During the winter months, collared lizards seek refuge beneath the ground, under large rocks, or within bedrock ledges only to emerge again

## Capturing the Lizard in a Picture

Many of Missouri's amphibians and reptiles are hard to spot due to their elusive nature. However, eastern collared lizards are large, conspicuous lizards that are active during the day and prefer to view their surroundings from atop a large rock. For avid wildlife watchers and photographers, these lizards are some of the most rewarding to photograph or observe. Even though collared lizards are wary of humans, with a little patience and time, you can easily get close to this colorful lizard to snap a few memories. You can even distinguish males from females and adults from juvenile lizards. Adults are typically 8 to 14 inches long, while juveniles are considerably smaller.

The males exhibit beautiful colors, especially during the breeding season, with shades of blue and green on their legs, belly, and tail, as well as a brightly colored orange throat. Females are not as brilliantly colored as males, but are typically more of a yellowish tan or light brown with vivid orange spots or bars on their sides and neck, an indication they are likely carrying eggs. Juveniles usually have a more reticulated pattern with dark bands or yellowish crossbands.



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in April. The lifespan of the lizard rarely exceeds five years.

## Restoring and Reintroducing

Collared lizards were once known to be widespread on glades in Missouri, but due to reduced fire frequency, resulting in changes in vegetation on the glades, lizard populations became isolated. By the 1980s, lizards were rapidly disappearing from Missouri.

In response to these declines, the Department of Conservation began restoring the glades to their original open nature. Many cedar trees were removed, and periodic fires were set to maintain the open, rocky habitat on which the lizard depends.

Once the habitat was restored, a reintroduction plan was initiated to repopulate the glades that once housed collared lizards. Faculty and students at Washington University in St. Louis worked with Department biologists to relocate lizards to glades.

With considerable research at these introduction sites, information was collected on animal growth, survival, reproduction, population size, and dispersal capability. It became clear that the restoration of glade habitats and opening the surrounding woodland understory led to the increased numbers and spread of collared lizards across many locations in the Ozarks.

With continued management of glades in the Ozarks by various agency staff and Missouri's citizens, the eastern collared lizard is again thriving and will continue to be a part of Missouri's biodiversity for many generations to come. ▲

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*Jeff Briggler has been the herpetologist for the Department since 2000. His work on amphibians and reptiles over the past years has taken him from the rivers throughout the Ozarks to the bottomland prairies in northern Missouri. He loves spending time outdoors fishing, gardening, and playing sports with his family.*





Clockwise from left: a male, female, and juvenile eastern collared lizard





*Summertime*

# BOW FISH ING

An exciting blend of hunting and fishing  
offers hot archery action on the water

BY TIM KJELLESVIK  
PHOTOGRAPHS BY DAVID STONNER







**F**or outdoor enthusiasts, Missouri summers can seem like a pause between the appeal of gobbling turkeys and hungry crappies in the spring and the anticipation of big bucks and migrating waterfowl in the fall. But if you're willing to gear up and practice your aim, summer is a good time to try a sport that pairs the anticipation of hunting with the tactile tug-of-war of fishing.

## GEARING UP

Like many of our modern day game-getting methods, bow fishing isn't new, but it's becoming more mainstream. Flourishing invasive fish species like the Asian carp present new and abundant opportunities for bow fishing. At the same time, archery equipment companies are developing more and better gear to outfit the bow angler.

### A CHEAPER BOW WILL DO

Another upside is that bow-fishing bows don't need to be an expensive deer-hunting setup — in fact, it's better to use a cheaper bow so you don't have to worry about it getting knocked around on shore or in a boat (or slimed by a fish). You also don't need as much draw weight. Forty pounds of draw is more than enough for shooting most fish. Since you'll probably be taking more shots per outing than you would in a deer-hunting scenario, your arms will appreciate the lighter draw weight.

The other major difference between a bow-fishing setup and a deer-hunting bow is the line retrieval device required for bow fishing. This attaches to the bow's riser via the threaded hole intended for a stabilizer and fall into two general categories. The first type is a bottle-style reel that uses poly-braid line. These reels are known for their snag-free smooth releases but typically



**One upside to bow fishing is that the bows don't need to be top of the line. You also don't need as much draw weight — 40 pounds of draw is more than enough for most fish.**

can't be used to effectively reel in larger fish. If you shoot a lunker, you'll use your hands to pull it in. The second type is a large spin-cast reel spooled with heavy monofilament. These reels are great for bringing in heavier fish but aren't very forgiving and can snap back if you forget to depress the casting button. Polarized sunglasses can serve as added eye protection against those instances and offer an added benefit of cutting glare on the water, allowing you to see fish more easily. Even as you read this, newer reels that address the weaknesses of both types are hitting the market.

### DENSER ARROWS WITH BARBED POINTS

Bow-fishing arrows differ from their hunting counterparts in that they are constructed from durable fiberglass or larger diameter carbon shafts and have a barbed point. The arrows not only have to withstand the stresses







of shooting and impact forces, but also the torquing effects of a stuck fish. In addition, the greater density of the bow-fishing arrows allows them to maintain more energy as they pass through the water and into the fish. The barbs on the point keep the arrow from coming out of the fish as it is being hauled back and out of the water. While variations exist in types of connections, all bow-fishing arrows are attached to a line back to the reel on the bow. Your local archery shop will be up to date on the latest products and can help you get fitted with a rig that works best for you.

**A general rule of thumb for bow fishing is to aim below where the fish appears in order to compensate for refraction. The deeper the target, the lower you aim.**

## **EXPLORING THE TACTICS**

Like traditional fishing, bow fishing can be done with or without a boat. Our great Missouri streams and ponds are perfect for stalking along the shore or wading into to get closer to your quarry. As you begin hunting fish, you'll find out how quickly they can key into your predatory



intentions and dart away. The trick is to go slow, just lifting your feet enough so they don't drag and disturb the bottom. Minimizing movement in your steps reduces vibrations in the water that alert fish to your presence.

### SHOOTING FROM A BOAT

Bow fishing by boat is best done with two or more people: one to drive, the others to bow fish or spot other fish. Ensuring you have a safe and stable platform is critical. Being at full draw can change your center of balance, especially in choppy water. While the boat is still on the trailer, work out positioning and determine where you can safely shoot from before launching. Also, keeping the boat clutter-free and clean will reduce line tangles and unnecessary messes once you land a fish. Many bow anglers outfit their boats with lights that attract and allow identification of fish during night excursions. If you plan on bow fishing at night, a headlamp is an invaluable piece of gear.

Sound can be a disadvantage or an advantage when bow fishing from a boat, depending on your location and quarry. Engine noise and other disturbances can spook fish, especially in shallow water. A quiet trolling motor comes in handy in these situations.

### SCARING UP YOUR TARGETS

In contrast to stealthily slipping your boat toward fish, using motor noise is part of the strategy when pursuing Asian carp. This species, now found in many of our major rivers, has a tendency to leap out of the water when disturbed by a cruising boat. Folks who bow fish for Asian carp position themselves at the rear of the boat and attempt to shoot the fish out of the air while the craft is motoring along, as if they were trap shooting. It's a frenetic scene when hundreds of these fish are leaping out of the water, and it can be dangerous. Unwary anglers have been struck and injured by these large-bodied airborne fish.

### PRACTICE YOUR AIM

Whether you are wading or bow fishing from a boat, especially in the early stages of your practice, always work to get the closest shot possible. Many bow anglers shoot instinctively, without the use of sight pins. A general rule of thumb is to aim below where the fish appears in order to compensate for refraction. The deeper the target, the lower you aim. Practice (or just missing a lot at first) will help you understand the trajectory and behavior of your arrow in the water. If you want some real-world practice before going out, try tying empty soda bottles with the caps on to different lengths of line anchored to heavy weights. Sink







## Know Missouri's Bow Fishing Regulations

It's our duty as responsible outdoor enthusiasts to know the regulations governing the types of activities we enjoy, and bow fishing is no exception. You may only take nongame fish species with a bow, and while most Missouri waters are open year-round for bow fishing, impoundments — bodies of water formed by dams or natural lakes not permanently connected to flowing streams — do have seasons when they are closed to this method. You must also have a valid fishing license to pursue fish with bow and arrow. For a complete and up-to-date listing of Missouri bow-fishing regulations, visit [mdc.mo.gov/node/17412](http://mdc.mo.gov/node/17412).

the bottles into a body of water on private land, and you'll have an underwater archery range — just remember to pick up after yourself. Alternatively, you can just practice aiming for rocks and leaves submerged in the water.

## ENJOYING YOUR HARVEST

Now that you're ready to hit the water, what do you do once you've successfully harvested your fish? Consider bringing a large tote to store and transport your fish back home. It is unethical and against the law to simply kill fish with no intention of using them. The Department has lots of great fish (especially nongame) recipes and videos at [mdc.mo.gov/node/18566](http://mdc.mo.gov/node/18566). Nongame fish have enjoyed a certain amount of protection from many anglers because they have historically been out of the mainstream of target species. With the increasing popularity of bow fishing and plentiful native and invasive species of fish, Missourians are now discovering this delicious secret. Putting tasty, healthy food on the dinner table is just another great benefit of bow fishing.

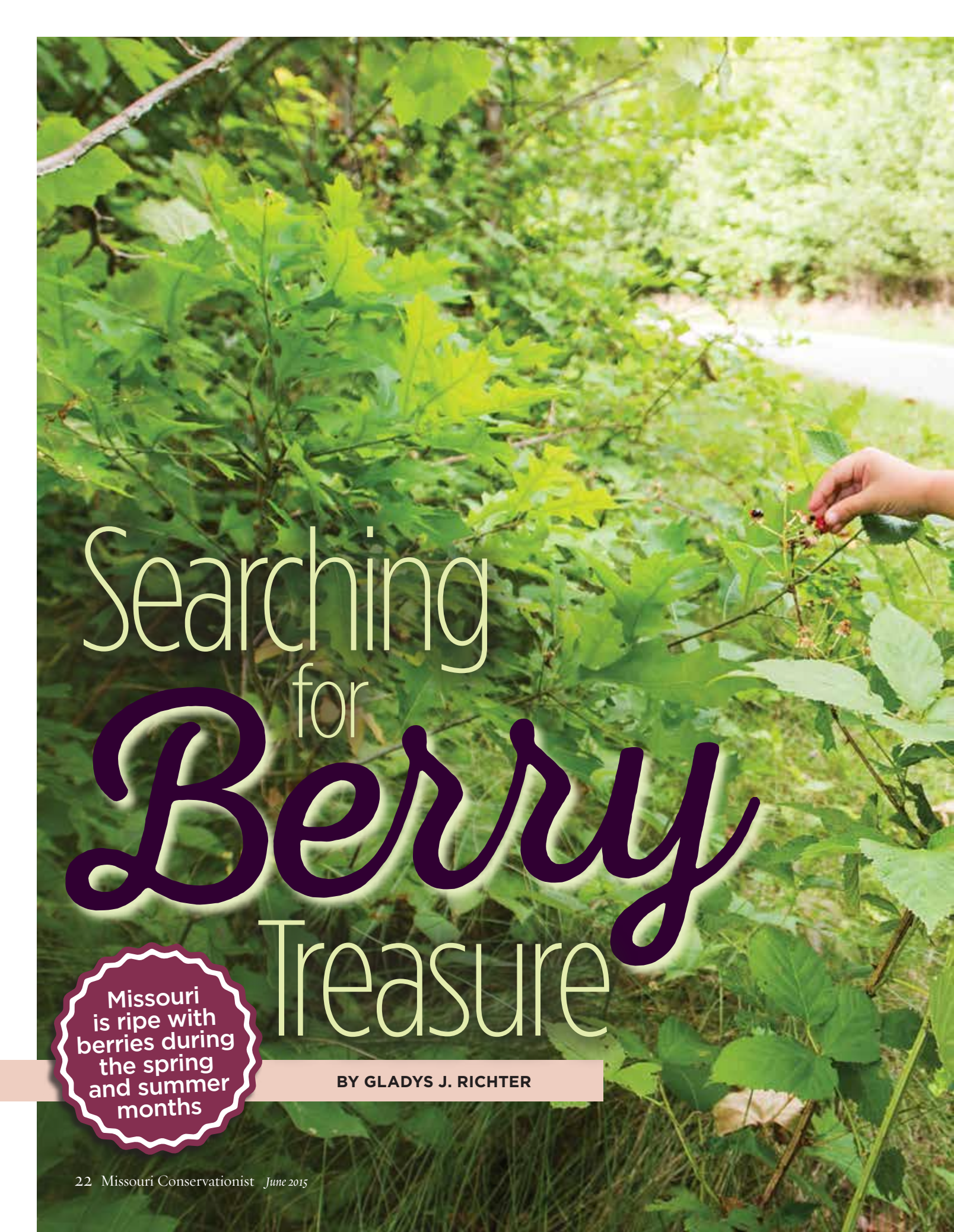
You don't have to take a time-out from the outdoors during the summer! Head out to the water with your bow-fishing rig. Once your arrow finds its mark and your line tenses and pulses against your retrieval, you'll see why summertime is as good a time as any for bow fishing in Missouri. ▲

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*Tim Kjellesvik resides in High Ridge, but he is at home in the outdoors. He is a freelance outdoor writer.*

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A photograph of a person's hand reaching into a dense green bush to pick a small, dark berry. The background is a soft-focus view of a river or stream flowing through a wooded area.

# Searching for *Berry* Treasure

Missouri  
is ripe with  
berries during  
the spring  
and summer  
months

BY GLADYS J. RICHTER







JUNE CAN BE A HOT MONTH in Missouri. It's prime time for ice-cold lemonade, an afternoon wade in the creek, and berry picking. The search for ripe blackberries begins late in the month, though prospects improve the beginning of July, and continues until the last of these fruits either dry and wither from lack of rain or are devoured by wildlife.

My family can't wait to pop those plump, juicy berries into their mouths, and they dream of cobblers, muffins, and pies. It is often the third wave of berry picking for us, with gooseberry and raspberry harvests just before. Even with thorn-inflicted scratches and purple-stained fingers, we believe mid-summer is the sweetest time of all.

Berry picking is something the entire family can enjoy, and the recipes produced from the bounty are just as much fun as the hunt for the juiciest berry on the bush.



In Missouri, there are six familiar categories of wild, edible berries that grow low to the ground, on bushes, or in cane thickets.



### *Gooseberries*

One of the earliest spring-blooming edibles is the Missouri gooseberry (*Ribes missouriense*). Reddish-brown, prickly branches unfurl their three-lobed leaves just as bright-colored songbirds begin their annual courtship serenades. In April and May, clusters of drooping, greenish-white, slender flowers appear. Soon after, tiny green spheres start to dangle from thin stems. It is when these tart, smooth berries reach a size of approximately a quarter of an inch that they are collected and dropped into





buckets. The berries are not ripe, but are considered just right for home-made pies. If a gooseberry escapes the bucket it will become dark purple and less tart.

Gooseberry shrubs grow 2 to 3 feet tall and may be found scattered throughout much of the state. These hardy plants are well adapted to Missouri's mixture of rocky woodlands, pastures, and forest edges. The green berries can be used to make pies, jams, and preserves, provided that you have plenty of sugar on hand to combat that super tart pucker.

## *Wild Strawberries*

Strawberries are famous for being delicious, but wild strawberries are a real treat. The heritage of many nursery-grown strawberries can be traced to our native plants. Even though the wild fruits are far smaller than those of cultivated varieties, they have a more robust, sun-kissed taste.

A favorite food of Missouri's box turtles, wild strawberries thrive in sunlit pastures, prairie lands, rocky glades, and open woodland slopes throughout the state. Strawberries begin flowering in April, and by the end of May, a few of the little fruits begin to turn from green to light pink. As June rolls around, strawberries put on their familiar red color that attracts wildlife and children alike. If you come across a patch of these sweet little gems, you will find it hard to wait for desserts to be made. Wild strawberries yield fantastic preserves, tarts, and ice cream toppings, but it takes a lot to make just one pie.







## Raspberries

A well-known favorite in Missouri is the wild raspberry (*Rubus occidentalis*). Also known as blackcap raspberry, this bramble puts on clusters of white flowers as early as April and continues through May.

The tart, unripe berries start out green then turn red before becoming purple-black and sweet at maturity. Since red-colored raspberries are familiar to many, one may confuse the fully ripe berry clusters of wild blackcap raspberries with that of blackberries. However, there are several distinct differences between the two.

Blackcap raspberries have arching branches covered with a white coating that rubs off when touched. This is especially true of young branches called canes. Blackberries do not have this white coating. Most raspberry leaves are made up of three leaf-



lets, the undersides of which are very white. When picked, the quarter-inch to half-inch-size raspberries pop from their stems to reveal a hollow cavity resembling that of a thimble.

Raspberry thickets expand in size each year. As the thorny canes arch, their tips reach the soil, root, and create new shoots. Colonies grow around bluffs, in woodland clearings, and the edges of pastureland throughout much of Missouri. Raspberries provide food for a variety of wildlife, and birds are often the first to harvest the

fruits. Wild turkeys are especially fond of the ripe, juicy berries.

Wild raspberry picking is best mid-June to early July. To harvest raspberries, gently take a dark ripe berry between your fingers and it will almost “jump” off the plant. But be careful — the fruiting stems are prickly.

The distinctive taste of raspberries makes them popular for use in pies, jellies, and jams. For a special summer treat, try freezing the aromatic berries inside ice cubes to add flavor to lemonades and teas.



## Dewberries

Missouri's varieties of dewberries look so much alike that it's easy to confuse one species with another. Some grow in low, wet bottomlands, while others prefer open ground along roadsides. You may find your pant legs caught by the thorns of these low-trailing plants as you hike along sunlit wooded trails and pasture areas. Dewberries bloom between April and June with small, rose-like, white to blush-pink flowers. The blossoms are composed of five petals and stand well above trailing canes and foliage.

Dewberries produce large, black berries in June and July that resemble those of their blackberry cousins. These juicy fruits may be used in the same manner as raspberries and blackberries to make jelly, jam, and other treats. They are fabulous when eaten fresh or as a dessert topping.



JAMES H. MILLER & TED BODNER, SOUTHERN WEED SCIENCE SOCIETY, BUGWOOD.ORG

## Blueberries

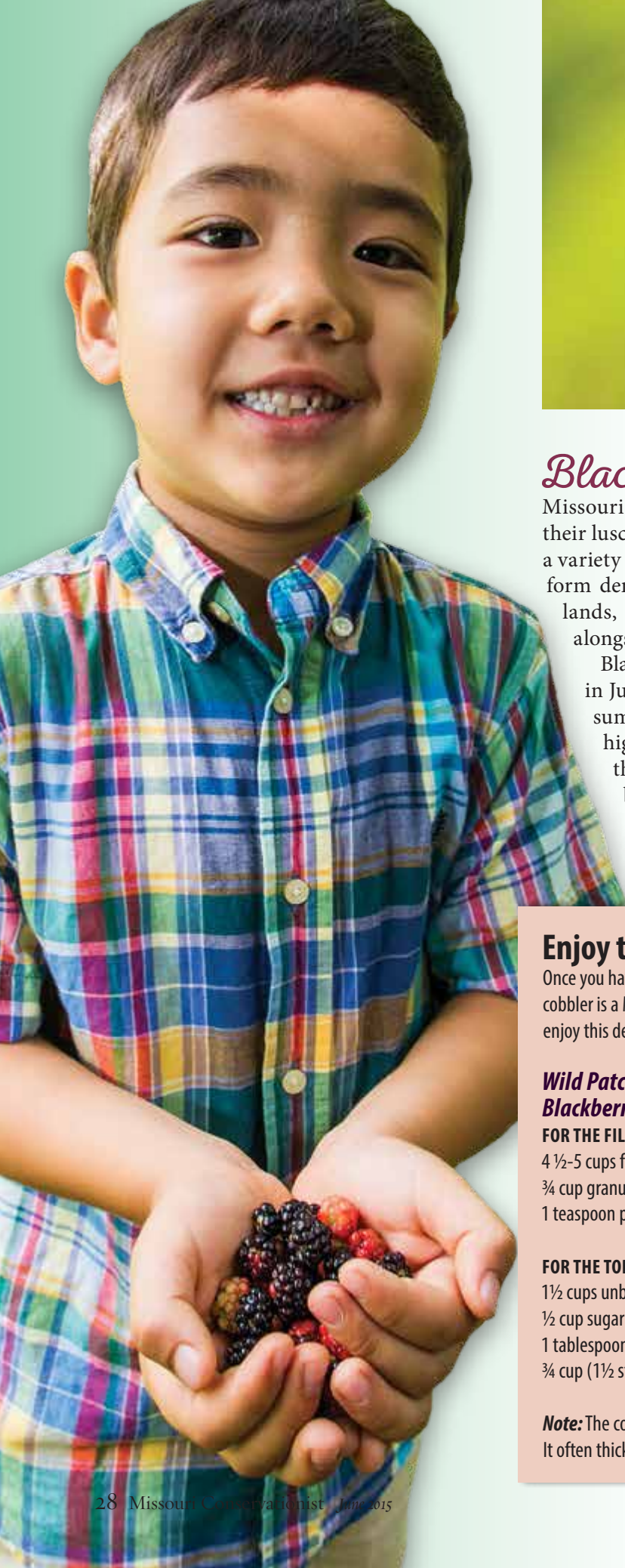
Huckleberry, deerberry, and sparkleberry are only a few of the names that have been given to wild blueberries. Missouri is home to three species of highbush and lowbush blueberries that bloom and ripen over a long season, beginning in April and continuing through September. Of these, the lowbush blueberry (*Vaccinium pallidum*) is considered to have the juiciest and most flavorful berries.

Lowbush blueberries bloom from April until June. These 1- to 3-foot-tall shrubs grow in central and southern Missouri on rocky woodland slopes and glades in well-drained, acidic soils. The oval-shaped leaves are smooth and glossy. Small flowers hang bell-like in clusters and may vary from white to reddish-pink.

Over several weeks during June, July, and August, small batches of lowbush blueberry fruits ripen to a very deep blue. The fruits may be harvested a little at a time and frozen for later use in pies, fruit spreads, and sauces. Morning muffins and pancakes are especially tasty when a handful of these small berries are added.







## *Blackberries*

Missouri is home to several species of blackberries. Popular for their luscious fruits, these brambles grow throughout Missouri in a variety of sunlit habitats. Thorny shrubs, standing 6 to 8 feet tall, form dense colonies within prairie lands, pastures, open woodlands, and fencerows. Large thickets also become established alongside ponds, ditches, and railroads.

Blackberries bloom in May and June, and ripen primarily in July. Their juiciness is often dependent upon the amount of summer rainfall. Although there may be many visible berries high on the bushes, blackberries may also bear fruit close to the ground where shade and moisture often help to produce bigger berries. The berries are useful for making an endless assortment of desserts, including cakes, pies, cobblers, jams, jellies, tarts, and pancake syrup.

### **Enjoy the Harvest**

Once you have a bucketful of berries, you are ready to try a recipe or two. Blackberry cobbler is a Missouri favorite. If you are lucky enough to have early berries, you can enjoy this dessert by the Fourth of July.

#### ***Wild Patch Blackberry Cobbler***

##### **FOR THE FILLING:**

4 ½-5 cups fresh wild blackberries  
¾ cup granulated sugar  
1 teaspoon pure vanilla extract

##### **FOR THE TOPPING:**

1½ cups unbleached all-purpose flour  
½ cup sugar  
1 tablespoon baking powder  
¾ cup (1½ sticks) butter

##### **DIRECTIONS:**

Preheat oven to 350 degrees F. Combine all ingredients for the filling and spread mixture into a greased 9 x 13 inch baking dish. Mix all dry topping ingredients. Using a pastry blender cut butter into the dry ingredients until mixture is crumbly (you should have pea-sized lumps). Spread the topping evenly over the berry filling. Bake for 45 to 50 minutes or until topping is golden brown. Serve with vanilla ice cream for a super summer treat.

**Note:** The cobbler will be juicy when you first take it from the oven. It often thickens as it cools.





## Safe Berry-Picking Tips

Summer berry picking can become a yearly family tradition. Before you venture out to gather these sweet treats, there are a few tips to help keep your trip safe and enjoyable.

While there are many edible fruits to enjoy in Missouri, there are some plants that are poisonous if eaten. Be sure to identify the berries that you find. If it is your first outing, try to pick berries with someone experienced with wild edibles. They are also likely to be familiar with the best places to locate berries.

Carry a supply of fresh drinking water, snacks, a first-aid kit, sunscreen, and insect repellent. Ticks, chiggers, and mosquitoes are sometimes found in areas where the juiciest berries grow. Wearing a long-sleeved, lightweight shirt and long pants helps repel biting creatures and protects your skin from thorny scratches. Tuck pant legs into socks and wear closed-toed shoes for added protection. A wide-brimmed hat can give your face shade from summer rays.

Many landowners are happy to share wild edibles growing on their

property. Ask for permission before picking, never trespass. It is also a nice gesture to offer some of the berries you have picked to landowners who have granted you the opportunity. If you plan to pick berries on public lands, be sure to acquaint yourself with the rules for those areas. ▲

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*Gladys J. Richter is an interpretive writer from Richland, Missouri. She and her family enjoy many outdoor activities, including fishing, kayaking, and seasonal nature walks.*



## Prairie Fringed Orchid

ONCE COMMON IN many states, two species of prairie fringed orchids are now listed as threatened due to habitat loss. In addition, hawkmoths, an important pollinator for the orchids, are rapidly disappearing due to the increased use of insecticides. These factors have made encounters with prairie fringed orchids extremely rare, even for avid orchid and native flower enthusiasts.

Missouri is one of the few states that's home to both the western (*Platanthera praeclara*) and eastern (*Platanthera leucophaea*) species of prairie fringed orchids. The western species tends to be shorter but with slightly larger and more densely clustered flowers. Both orchids are found in moist-to-wet unplowed, tallgrass prairies, and sedge meadows, but some have been found in old fields or roadside ditches. They can grow 1 to 4 feet tall and have as many as two dozen flowers, emerging in May and blooming in June.

I was introduced to these rare flowers about 15 years ago when I started learning about prairies and their ecosystems. Each year following that introduction, I tried and failed to locate them.

It wasn't until 10 years later that I received a tip, through GPS tagging of the elusive flower, on two locations where both species were spotted. That summer, flowers on the prairies were more prevalent than normal thanks to ample rainfall in the previous months. I remember being so excited about the possibility of photographing not one, but two, of these rare flowers.

Searching for scarce flowers on a large remnant of prairie is not an easy task. After an hour or so, I located two orchids. I approached them very carefully, so as not to disturb the flowers and their environment. They were almost concealed by the surrounding tallgrass, with just a small part of the flowers peeking out. Gently swaying in the summer breeze, they looked mysterious and reminded me of a precious gem hidden in a secret place, just waiting to be discovered.

Looking back now, I am glad that my persistence finally paid off. Not only did I manage to get images of the flowers, but I also learned a great deal about prairie plants and conservation efforts to help them.

Prairie fringed orchids and other native flowers are a treasure to the state of Missouri and its prairie ecosystems. The diversity of plants provides important food sources for many pollinators, such as bees, butterflies, and moths, and in return they create a richer and healthier habitat for all to enjoy.

—Story and photograph by Noppadol Paothong

📷 180mm macro lens • f/4.5 • 1/100 sec • ISO 400

*We help people discover nature through our online Field Guide. Visit [mdc.mo.gov/node/73](http://mdc.mo.gov/node/73) to learn more about Missouri's plants and animals.*









## Union Ridge Conservation Area

*Union Ridge Conservation Area is home to Spring Creek Natural Area, the largest savanna landscape of its type in Missouri, which provides visitors a unique glimpse into the past.*

UNION RIDGE CONSERVATION Area consists of 8,263 acres located in Sullivan, Adair, and Putnam counties, and can be found just 30 minutes northwest of Kirksville. Most of the area was acquired in 1989 when the Conservation Department purchased the core of the property from Mutual Assurance Company of New York. Prior to acquisition, the area had been used for cattle ranching since the late 1800s and was known locally as Henley Ranch, and later as Spring Creek Ranch. With diverse natural communities, such as woodlands, forests, and savanna, Union Ridge is home to a wide array of plants and wildlife, including native wildflowers and songbirds, deer, turkey, and bobwhite quail.

The 1,769-acre Spring Creek Ranch Natural Area is the highlight of the conservation area, and is what much of north central Missouri looked like prior to European settlement. The unique savanna habitat in the natural area is found at the convergence of deciduous forests to the east and tallgrass prairie to the west. It's characterized by scattered, open-grown oaks with an understory of native grasses, shrubs, and wildflowers. Historically, this natural community was maintained by fire, which created an open canopy and allowed sunlight to reach the ground, encouraging growth of these grasses and forbs. The natural area includes a pristine prairie headwater stream and rare plants, such as dwarf chinkapin, quaking aspen, and prairie willow. Union Ridge also includes a 1,700-acre woodland restoration project on the northern portion of the conservation area.



70–200mm lens • f/4 • 1/320 sec • ISO 400 | by David Stonner

Management of the area is focused heavily on natural community management for savanna, woodland, and forest habitats that benefit a wide variety of wildlife. Prescribed fire and woodland thinning are the primary management tools used, and control of nonnative and invasive species is also a priority.

Union Ridge Conservation Area offers opportunities for all types of outdoor enthusiasts. Anglers will find three stocked water bodies, including an 11-acre lake. More than 30 miles of interior field roads dissect the area and create good public access for birding, hiking, or hunting. A bird checklist for the area can be found at [mobirds.org/CACHE/AreaChecklist.aspx?site=802](http://mobirds.org/CACHE/AreaChecklist.aspx?site=802).

If you want to enjoy the outdoors any time of year, put Union Ridge Conservation Area on your list. It's definitely worth the trip.

—Ryan Jones, area manager



### Union Ridge Conservation Area

**Recreation Opportunities:** Bird watching, hunting, fishing, camping, hiking, wildlife and nature viewing

**Unique Features:** Historic oak savanna, open woodlands, fishing lake and ponds

**For More Information:** Call 660-785-2420 or visit [mdc.mo.gov/a8932](http://mdc.mo.gov/a8932)





# MDC DISCOVER nature

To find more events near you, call your regional office (phone numbers on Page 3), or visit [mdc.mo.gov](http://mdc.mo.gov) and choose your region.

## FAMILY FISHING FAIR

**JUNE 6 • SATURDAY • 9 A.M.–2 P.M.**

*Southwest Region, Shepherd of the Hills  
Fish Hatchery, 483 Hatchery Road,  
Branson, MO 65616*

*No registration required, call 417-334-4865,  
ext. 0, for information*

*Families, only ages 15 and younger will fish*  
Come join us for this annual free event where you will fish in a stocked pond and learn how to be a better angler through several learning stations. A special performance by the "Fishin' Magicians" at noon will introduce visitors to the importance of water resources and amaze with their magic. Each child will receive a free goodie bag, and a rod and reel will be given away at the end of the day. A limited number of loaner fishing poles will be available.

## FAMILY SKILLS SAMPLER

**JUNE 6 • SATURDAY • 10 A.M.–3 P.M.**

*Southeast Region, Cape Girardeau*

*Conservation Nature Center, 2289 County  
Park Drive, Cape Girardeau, MO 63701*

*No registration required, call 573-290-5218 for  
information*

*Ages 5 and older, families*

Have you always wanted to try archery, fishing, or canoeing? Here's your chance to sample each of these skills with the assistance of conservation staff. Opportunities are on a first-come, first-served basis.

## TEEN CLUB: CANOEING

**JUNE 16 • TUESDAY • 8 A.M.–5 P.M.**

*Central Region, Runge Conservation Nature  
Center, Hwy 179, Jefferson City, MO 65109*

*Registration required, space is limited  
Call 573-526-5544*

*Ages 12 to 18*

Join staff and volunteers from Runge Conservation Nature Center for a day of paddling, floating, and exploring one of Missouri's nearby rivers. Transportation to and from the nature center will be provided, as will the canoes, paddles, and personal flotation devices. Pack a lunch and personal items in a dry sack. Participants must fill out a permission form.

## INSECTS — NATURE'S HEROES

**JUNE 19 • FRIDAY • 9 A.M.–NOON**

*Southwest Region, Springfield Conservation  
Nature Center, 4601 S. Nature Center Way,  
Springfield, MO 65804*

*No registration required, call 417-888-4237  
for information*

*All ages, families*

Explore the superpowers of some common insects as the nature center teams with the Springfield-Greene County Library during their summer reading program,

# 6

## IDEAS FOR FAMILY FUN

Every Hero has a Story. Have fun enjoying indoor/outdoor activities, stories, and crafts. The mobile library will be present, so bring your library card.

## FIREFLY EVENT

**JUNE 20 • SATURDAY • 7:30–9:30 P.M.**

*Kansas City Region, Burr Oak Woods  
Conservation Nature Center,*

*1401 NW Park Road, Blue Springs, MO 64015*

*No registration required*

*Families*

Blinking and dancing in the evening sky, the magic and beauty of fireflies is breathtaking. Use this evening event to learn more about these popular insects. Then hike into the darkening forest to watch the fireflies appear.

## BEGINNING YOUTH .22 RIFLE

**JUNE 27 • SATURDAY • 8–9:30 A.M.**

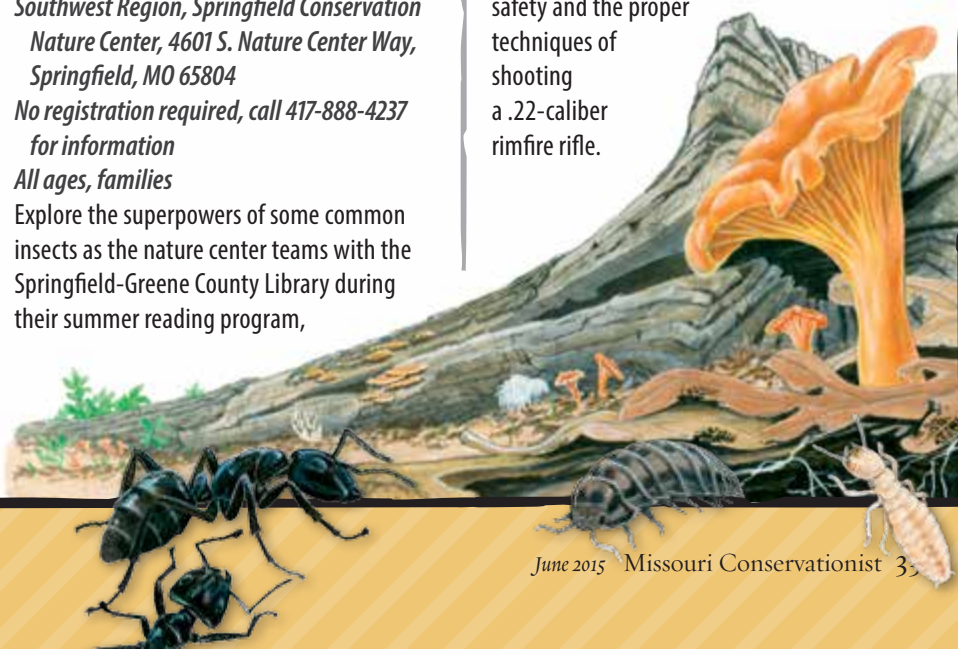
*St. Louis Region, Jay Henges Shooting Range  
and Outdoor Education Center,*

*1100 Antire Road, High Ridge, MO 63049*

*Registration begins May 27, call 636-938-9548  
for information*

*Ages 9 to 15*

Youth who are first-time rifle shooters are invited to participate in this session to learn safety and the proper techniques of shooting a .22-caliber rimfire rifle.







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## I Am Conservation

Mike Smith poses on the Rotary Riverfront Trail in Washington, Missouri, a city park Smith has helped maintain. "I've been interested in protecting and enhancing our riverfront ever since we moved into our house near the river in 1986," said the Washington Middle School shop teacher. In 2002, Smith started the Washington Urban Forestry Council (WUFC), an organization focused on enhancing the riverfront forest. "Our main goals are increasing the percentage of canopy cover for the city, reducing the number of people that top their trees, and educating the community on the benefits of our urban forest," said Smith. "Every year we plant native trees in some part of the city. Most recently, we developed a riverfront management plan that guides the city in managing this area as a native plant community." The WUFC has removed invasive plants, like Japanese hops vine, bush honeysuckle, and garlic mustard, that have crowded out native species. "In one area in particular, WUFC had the city parks department use heavy equipment to clear a large area that was overtaken by these invasive species," said Smith. "I then organized an event that drew 50 people to replant it in a variety of late succession, bottomland tree species. This will be a long-term process, but the idea is to pick a few areas that can realistically be managed successfully." Smith also has land in Iron County that he purchased in 1976 and recently enrolled in the Forest Stewardship Program. He works with the Missouri Department of Conservation to improve the health of the forest and increase the land's biological diversity. "I have a deep appreciation for the forests of Missouri," said Smith. "By actively managing this land, I get an opportunity to spend a lifetime learning about it." —*photograph by Noppadol Paothong*